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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/797,900	03/10/2004	James J. La Clair	1133.022US1	3353

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EXAMINER

LIN, JERRY

ART UNIT	PAPER NUMBER
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1631

MAIL DATE	DELIVERY MODE
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05/18/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/797,900	Applicant(s) CLAIR, JAMES J. LA	
	Examiner Jerry Lin	Art Unit 1631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 March 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) 1, 11 and 21-23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2-10 and 12-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>3/12/2007</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Applicants' arguments and amendments, filed March 12, 2007, have been fully considered and they are not deemed to be persuasive. The following rejections are reiterated or newly applied as necessitated by amendment. They constitute the complete set presently being applied to the instant application.

Status of the Claims

Claims 2-10 and 12-20 are under examination.

Claims 1, 11, and 21-23 are withdrawn as being drawn to an unelected invention.

Claim Rejections - 35 USC § 112, 2nd Paragraph

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 2-10 and 12-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. Instant claims 2 and 12 both recite "stream of digital data." It unclear what this term means. Digital data is numerical information. A stream of digital data is a series of numerical information. It is unclear how a series of numerical information is to pass through a solid object such as a substrate. Claims 3-10 and 13-20 are rejected for depending from claims 2 and 13.

Response to Arguments

The Applicants have replied to this rejection by stating that it is well known in the art that digital information is routinely passed through fibers and that the specification gives examples of the meaning of the phrase "stream of digital data." However, the Applicant's examples in the specification and references to the art use electronic or optical signals to pass information through the fibers. In other words, a stream of digital data is not being passed through a physical object, but a signal in an electronic, electromagnetic or optical form is being passed through a physical object. None of these examples demonstrate how a "stream of digital data" is passed through a physical object.

In light of the examples provided in the response and the embodiments provided in the specification, "a stream of digital data" will be interpreted to mean a light signal for purposes of this examination.

This rejection is maintained from the previous office action.

4. Regarding claim 6 and 15, the instant claims have been amended to recite "a current of molecules." The instant specification does not define the term, nor does a search of the art provide any clear definition. The Applicants state that the Examiner's interpretation that the phrase implies a fluorescence signal generated by two molecules is not correct. The Applicants state that the proper interpretation of this amendment is a molecules that exists in two states – an inactive or active state. However, signals from

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fluorescence may be interpreted as two states – either the molecules does fluorescence or it doesn't. Clarification via clearer claim language is requested.

This rejection is necessitated by amendment.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 2-10 and 12-20 are rejected under 35 U.S.C. 102(e) as being anticipated by O'Keefe (US 2002/0004204 A1) in light of Berlien et al. (US 5850195).

The instant claims are drawn to a method of transferring a stream of digital data through a substrate, allowing the interaction of a molecule with the substrate, receiving streams of digital data transferred through a substrate, and decoding the identity of the molecule interacting with the substrate according to the alteration of the stream of digital data.

Regarding claims 2 and 12, O'Keefe teaches a method and device that includes creating at least one stream of digital data and transferring it through a substrate (page 6, paragraph 0065; page 8, paragraph 0082, 0083); manipulating the molecular

structure of the substrate by allowing the interaction of molecules with the substrate (page 2, paragraph 0012); receiving streams of digital data transferred through the substrate (page 10, paragraph 0106-0107); and determining the identity of the molecule (page 2, paragraph 0012; page 10, paragraph 0106-0107).

Regarding claim 3, O'Keefe teaches altering the stream according to a programmable function (page 8, paragraph 0086-0088).

Regarding claims 4, 5, 13, and 14, O'Keefe teaches using a laser beam that is polarized (page 8, paragraph 0082-0083).

Regarding claim 6 and 15, O'Keefe teaches creating a digitally encoded molecular current (page 10, paragraph 0106-0107).

Regarding claims 7, 16, and 17, O'Keefe teaches generating digital electronic signals by gating electron flow over a two or three dimensional space (page 10, paragraph 0107) as taught by Berlien et al. (US 5850195) (please see Berlien et al., throughout).

Regarding claim 8-10 and 18-20, O'Keefe teaches controlling heat to add molecules in a two-dimensional surface or a three dimensional element (page 10, paragraph 0108-0110; page 6, paragraph 0062-0064).

Response to Arguments

7. The Applicants first respond to this instant rejection by stating that O'Keefe does not disclose using a digital signal, but rather it uses signals in an analog matter. The Examiner disagrees. The instant claims states that it creates a stream of binary digital

data. This is accomplished by using some sort of signal that passes through the substrate. The O'Keefe reference teaches using a optical signal that is passed through the substrate. This signal is then converted into digital data. Since the signal is converted into digital data, the signal must have digital data inherently encoded within the signal. If the signal did not have digital data, then the signal could not be converted into digital data. Thus, the instant claims do teach creating a stream of digital data.

The applicants also respond by saying that the digitals are encoded within the signal. See the Examiner's response above. In addition, the Applicants state the changes/association directly causes the change in the digital signal. However, O'Keefe teaches that the optical signal changes when interacting with a molecule. Since these optical signals encode for digital information, the interaction with a molecule necessarily changes the digital signal.

Finally, the applicants state that the analog to digital conversion device taught by Berlien et al. is not required in the claimed invention. However, the claims are written with the open language of "comprising" and do not foreclose the use of other devices or additional steps.

It is noted that the Applicants have amended the claims to include the term "binary digital data." According to the Merriam-Webster Online Dictionary, the term digital is defined as "of, relating to, or being data in the form of especially binary digits." Thus, when O'Keefe uses the term digital, the references necessarily include binary digital information.

This rejection is maintained from the previous Office Action.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jerry Lin whose telephone number is (571) 272-2561. The examiner can normally be reached on 10:00-6:30, M-F.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ram Shukla can be reached on (571) 272-0735. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



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